Idiopathic Acquired Hemolytic Anemia

CHARLES J. WALLACE, M.D., Sacramento

A 35-YEAR-OLD Caucasian man, first observed by the author in 1949 for a "checkup" examination, and thereafter at about yearly intervals, was found to be healthy on all occasions. No abnormalities were noted in routine examinations of the blood, in urinalysis, x-ray films of the chest (1950 and 1953) or in an electrocardiogram (1954).

Beginning about the first week of April, 1954, the patient felt unusually tired and noted dark urine, but not until April 22, when a friend noted "yellowish eyes," did he seek medical advice. The mucous membranes were pale and the skin and sclerae were icteric, but further physical examination revealed no clue as to the reason for the jaundiced state and probable anemia. None of his family had had a similar illness; he had taken no medication, and had had no exposure to toxic substances or to another jaundiced person. There had been no infection prior to the present illness. Only after laboratory studies, which are summarized below, was the diagnosis of acute, acquired, idiopathic hemolytic anemia apparent.

1. Hematological Studies

Hemoglobin 8.4 gm. per 100 cc.; value, 54.1 per cent; hematocrit (packed cell volume) 25 per cent; erythrocytes 2,520,000 per cu. mm.; mean corpuscular volume 99.5 cu. microns; mean corpuscular hemoglobin 33.0 micromicrograms; mean corpuscular hemoglobin concentration 33.5 per cent; reticulocytes 60 per cent; leukocytes 16,600 per cu. mm.; neutrophils 65 per cent (segmented 55, nonsegmented 10); eosinophils 0; basophils 0; lymphocytes 25; monocytes 6; metamyelocytes 4.

Remarks: Seventeen nucleated erythrocytes per 100 leukocytes. Pronounced polychromasia and definite spherocytosis.

Bone marrow: Pronounced normoblastic hyperplasia. Granulopoiesis showed some shift to the left, there being a relative increase in myelocytes and early metamyelocytes, with almost no segmented neutrophils appearing. Eosinophils and megakaryocytes were present in normal numbers.

Erythrocyte fragility test (per cent of hemolysis in 0.4 per cent saline solution): Patient, 76 per cent; normal control, 6 per cent.

Direct Coombs' test reaction: Positive.

2. Urine Studies

Results of routine tests within normal limits. Reaction for bilirubin, negative; for urobilinogen, faint in 1:20 dilution. (Test for hemoglobin not done.)

3. Blood Chemical Studies

Bilirubin: Direct 0.20 mg. per 100 cc.; delayed direct, 0.50 mg.; indirect, 1.95 mg.; per cent of promptness, 40; per cent of delayed direct, 25.

Cephalin flocculation: 24 hours, negative; 48 hours, negative.

Thymol turbidity: 5.0 units.

4. Stool Studies

Fecal urobilinogen (four day Watson-Schwartz procedure) 2,306 mg. per 24 hours.

A recapitulation of treatment and of results of subsequent tests appears in Table 1. The excess of erythrocyte destruction over production was counteracted by giving cortisone and by transfusion of erythrocytes suspended in normal saline solution. However, since excessive hemolysis was not completely stopped and since prolonged cortisone therapy did not seem warranted if it could be abandoned for some less complicated method of treatment, splenectomy was performed June 10, 1954. The surgeon observed an accessory spenule, about 1.0 by 1.5 cm., with its own blood supply, lying against the hilum of the moderately enlarged spleen proper, and both were removed. Having previously explored the abdominal cavity, he then opened and examined the lesser sac, but no other accessory spenules were found. Other than congestive splenomegaly, microscopic examination of the spleens showed no abnormality.

After operation the amount of cortisone was gradually reduced and use of the hormone was discontinued altogether on the ninth postoperative day. Results of all laboratory tests performed thereafter were normal.

DISCUSSION

Since the precise mechanism causing acquired hemolytic anemia of the autoantibody type is unknown,[1, 2] treatment is still empirical. Before the

Submitted November 7, 1955.

TABLE 1.—*Recapitulation of Laboratory Data and Treatment*

Date	Treatment	Reticulocytes per 100 Red Cells	Fecal Urobilinogen (24 Hours)	Hemoglobin (Gm. per 100 cc.)	Reticulocytes	Direct Coombs' Test	Red Cell Fragility (Per Cent Hemolysis in 0.4 Per Cent Saline Solution)
April 23, 1954	.....	60.0	....	8.4	Spherocytosis (17 nucleated RBC/100 WBC)	Pos.	.....
April 25, 1954	Bed rest, cortisone 200 mg./d	....	....	7.1	Spherocytosis (31 nucleated RBC/100 WBC)	....	.....
May 3, 1954	Same	71.0	2306 mg.	5.8	Spherocytosis	Pos.	Patient: 76 Control: 6
May 4, 1954	Same plus 500 cc. red cells in 0.9% saline	....	....	....	.....	....	.....
May 5, 1954	500 cc. red cells in 0.9% saline	....	....	....	.....	....	.....
May 6, 1954	Bed rest, cortisone	....	....	11.6	Spherocytosis	Pos.	.....
May 21, 1954	Same	....	776 mg.	11.2	.....	Neg.	.....
June 2, 1954	Same	9.0	....	13.9	Only slight spherocytosis	Neg.	.....
June 10, 1954	Splenectomy	....	....	13.8	.....	....	.....
June 17, 1954	.....	....	....	14.7	Normal	Neg.	.....
July 14, 1954	.....	....	55 mg.	14.5	Normal	....	.....
Sept. 28, 1954	.....	....	....	16.2	Normal	....	.....
Jan. 11, 1955	.....	1.9	....	16.0	Normal	Neg.	Patient: 32 Control: 34
Sept. 28, 1955	.....	....	....	16.5	Normal	....	.....

advent of corticotropin (ACTH) and cortisone, splenectomy and blood transfusion offered the only hope of cure, but the results of these procedures alone were of benefit in only about 50 per cent of cases.[2] The use of hormones appears to have brightened the outlook,[2] but it is still too soon for accurate evaluation.

Whether cortisone protects erythrocytes from the effect of hemolysins or in some manner impairs the development of antibodies is also not known. In this instance, it would appear that cortisone had the latter effect, for the Coombs' test reaction became negative and erythropoiesis decreased during cortisone administration before splenectomy. It would appear that persons with this disorder should be treated first with cortisone (or corticotropin) and then have splenectomy.

2909 J Street, Sacramento.

REFERENCES

1. Dacie, J. V.: The Haemolytic Anaemias, Grune and Stratton, 1954.

2. Evans, R. E.: Autoantibodies in hematologic disorders, Stanford Medical Bulletin, 13:152-166, May 1955.